

Appl. No. 09/738,807
Amdt. dated 01/20/2005
Reply to Office Action of 10/21/2004

BEST AVAILABLE COPY**The Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:**1. (original):**

In a network device for configuring a virtual private network (VPN), a method comprising:

receiving management traffic over the VPN; and

managing the network device using the management traffic received over the VPN.

2. (original):

The method of claim 1, wherein the managing the network device includes managing the network device using a secure in-band management configuration.

3. (original):

The method of claim 1, further comprising:

linking one or more management ports of the network device with the VPN.

4. (original):

The method of claim 1, further comprising:

linking a management function internal to the network device with the VPN.

5. (original):

The method of claim 1, further comprising:

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performing Internet Protocol (IP) services or Multiprotocol Label Switching (MPLS) services.

6. (original):

A network device comprising:

a plurality of input and output data links;

a routing and forwarding module to route and to forward data on the input and output data links, to configure a virtual private network (VPN), and to receive management traffic over the VPN; and

a management module to receive the management traffic from the VPN and to manage the network device using the management traffic.

7. (original):

The network device of claim 6, wherein the management module is to use a secure in-band management configuration.

8. (original):

The network device of claim 6, further comprising:

one or more management ports; and

a link to link the management ports with the VPN.

9. (original):

The network device of claim 6, further comprising:

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a link to link an internal management function with the VPN.

10. (original):

The network device of claim 6, wherein the routing and forwarding module is to perform Internet Protocol (IP) services or Multiprotocol Label Switching (MPLS) services.

11. (original):

A method for a network device comprising:

configuring the network device to support a virtual private network (VPN); and

linking a management device or a management function with the VPN.

12. (original):

The method of claim 11, further comprising:

carrying management traffic for the network device using the VPN.

13. (original):

The method of claim 12, further comprising:

managing the network device using the management traffic carried on the VPN.

14. (original):

The method of claim 11, further comprising:

linking the VPN to the management device using an external link or linking the VPN to the management function using an internal link.

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15. (original):

The method of claim 11, further comprising:

performing Internet Protocol (IP) services or Multiprotocol Label Switching (MPLS) services.

16. (original):

A network device comprising:

a routing and forwarding module to route and forward packets for the network device and to configure the network device to support a virtual private network (VPN); and
a link to link a management device or a management function with the VPN.

17. (original):

The network device of claim 16, wherein the routing and forwarding module is to deliver management traffic on the VPN for the network device.

18. (original):

The network device of claim 17, further comprising:

a management module to manage the network device using the management traffic delivered on the VPN.

19. (original):

The network device of claim 16, further comprising:

an external link to link the VPN to the management device

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20. (original):

The network device of claim 16, further comprising:

an internal link to link the VPN to the management function internal to the network device.

21. (original):

The network device of claim 16, wherein the routing and forwarding module is to perform Internet Protocol (IP) services or Multiprotocol Label Switching (MPLS) services.

22. (original):

A network device for configuring a virtual private network (VPN) comprising:

means for receiving management traffic over the VPN; and

means for managing the network device using the management traffic received over the VPN.

23. (original):

The network device of claim 22, wherein the means for managing comprises means for managing the network device using a secure in-band management configuration.

24. (original):

The network device of claim 22, further comprising:

means for linking one or more management ports of the network device with the VPN.

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25. (original):

The network device of claim 22, further comprising:

means for linking a management function internal to the network device with the VPN.

26. (original):

The network device of claim 22, further comprising:

means for performing Internet Protocol (IP) services or Multiprotocol Label Switching (MPLS) services.

27. (original):

A network device comprising:

means for configuring the network device to support a virtual private network (VPN);
and

means for linking a management device or a management function with the VPN.

28. (original):

The network device of claim 27, further comprising:

means for carrying management traffic for the network device using the VPN.

29. (original):

The network device of claim 28, further comprising:

means for managing the network device using the management traffic carried on the VPN.

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30. (original):

The network device of claim 27, further comprising:

means for linking the VPN to the management device using an external link or linking the VPN to the management function using an internal link.

31. (original):

The network device of claim 27, further comprising:

means for performing Internet Protocol (IP) services or Multiprotocol Label Switching (MPLS) services.

32. (original):

A machine-readable medium providing instructions, which if executed by a processor, cause the processor to perform an operation comprising:

configuring a network device to support a virtual private network (VPN);
receiving management traffic over the VPN; and
managing the network device using the management traffic received over the VPN.

33. (original):

The machine-readable medium of claim 32, further providing instructions, which if executed by the processor, cause the processor to perform an operation comprising:

managing the network device using a secure in-band management configuration.

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34. (original):

The machine-readable medium of claim 32, further providing instructions, which if executed by the processor, cause the processor to perform an operation comprising:

linking one or more management ports of the network device with the VPN.

35. (original):

The machine-readable medium of claim 32, further providing instructions, which if executed by the processor, cause the processor to perform an operation comprising:

linking a management function internal to the network device with the VPN.

36. (original):

The machine-readable medium of claim 32, further providing instructions, which if executed by the processor, cause the processor to perform an operation comprising:

performing Internet Protocol (IP) services or Multiprotocol Label Switching (MPLS) services.

37. (original):

A machine-readable medium providing instructions, which if executed by a processor, cause the processor to perform an operation comprising:

configuring a network device to support a virtual private network (VPN); and

linking a management device or a management function with the VPN.

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38. (original):

The machine-readable medium of claim 37, further providing instructions, which if executed by the processor, cause the processor to perform an operation comprising:

carrying management traffic for the network device using the VPN.

39. (original):

The machine-readable medium of claim 38, further providing instructions, which if executed by the processor, cause the processor to perform an operation comprising:

managing the network device using the management traffic carried on the VPN.

40. (original):

The machine-readable medium of claim 38, further providing instructions, which if executed by the processor, cause the processor to perform an operation comprising:

linking the VPN to the management device using an external link or linking the VPN to the management function using an internal link.

41. (original):

The machine-readable medium of claim 38, further providing instructions, which if executed by the processor, cause the processor to perform an operation comprising:

performing Internet Protocol (IP) services or Multiprotocol Label Switching (MPLS) services.

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42. (original):

A system comprising:

one or more network devices to configure a virtual private network (VPN); and

one or more links to link the VPN with at least one management device, the management device to facilitate management of the network devices by sending management traffic to the network devices via the links and VPN.

43. (original):

The system of claim 42, wherein the management device is to manage the network devices using a secure in-band management configuration.

44. (original):

The system of claim 42, wherein the network devices include one or more management ports to couple with the VPN.

45. (original):

The system of claim 42, wherein the network devices include an internal management function to link with the VPN.

46. (original):

The system of claim 42, wherein the network devices are to perform Internet Protocol (IP) services or Multiprotocol Label Switching (MPLS) services.